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The Parent-Adolescent Relationship Education Program: a curriculum for prevention of STDs and pregnancy in middle school youth

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Earlier initiation of sexual intercourse among youth is a national trend influencing the frequency of sexual activity, the number of sexual partners, the advent of teen pregnancy at increasingly younger ages, and increase in the frequency of sexually transmitted diseases (STDs) in youth. A Youth Risk Behavior Survey, conducted by the National Center for Chronic Disease Prevention and Health Promotion for 1990, 1991, and 1993, reported that approximately 54% of high school students have had sexual intercourse--18% with four or more partners, (1) These and other results (2,3) indicate that the proportion of adolescents in the United States who reported being sexually experienced increased substantially during the 1980s and 1990s. A central issue in recent years is the number of unmarried teenagers giving birth, which more than tripled in the 15- to 17-year-old group between 1950 and 1996; the percentage of unmarried teenage mothers aged 15-17 years in 1996 was 71%, nearly 8 times the 9% in 1950. (4)

The incidence of sexual intercourse shows considerable variation with gender, race, and geographical location. Results of the Youth Risk Behavior Survey of high school students for 1990 show that boys are more likely than girls to be sexually active--60.8% of boys compared to 48% of girls. In recent years, there has been a decline in the birth rate for African American teenagers; nevertheless, the birth rates for African American and Hispanic teenagers remain higher than those for other population groups. (4) The south and southwestern U. S. regions have higher pregnancy and fertility rates for 10- to 14-year-olds and 15- to 19-year-olds than the rest of the nation. For example, Texas (with birth rates of 75.8 births/1,000 girls aged 15-19 years in 1995, 79.1 for girls aged 15-19 in 1992, and 1.8 for girls aged 10-14 in 1992) has one of the highest pregnancy, fertility, and birth rates for all teenage youth, and the third highest number of teen births in the United States. (3,5-8)

Consequences of early sexual activity among adolescents include elevated teenage pregnancy rates and growing rates of STDs, including human immunodeficiency virus (HIV) infection. Adolescents have the highest age-specific risk for many STDs (9) and the highest age-specific proportion of unintended pregnancy in the United States. (10) Researchers cite poor contraceptive use as a primary reason for high pregnancy rates in the United States. (11,12) Failure to use contraception is particularly high among adolescents. The Youth Risk Behavior Survey in the United States for 1993 (13) showed that only 52.8% of teens used a condom during their last intercourse. Approximately 4 in 10 girls become pregnant at least once before age 20. (14) Between 1960 and 1991, the US fertility rate for girls aged 10-14 years rose from 0.8 to 1.4; for the southeastern United States, a rate as high as 5.7 was reported in 1992. (13) Many of the risk indicators for teen pregnancy are also risk factors for repeat pregnancy. (15) Younger teens also are more likely to have a shorter interval between first and second births than older teens. (16) Failure to use birth-control methods, such as condoms, places adolescents at increased risk of exposure to STDs. The risk is still greater for adolescents who are younger at first intercourse and acquire multiple partners more quickly. (17) Teens are at high behavioral risk for acquiring most STDs. Chlamydia and gonorrhea are the most common curable STDs among teens. Researchers report it is common to see more than 5% of young men and 5-10% of young women infected with chlamydia. (18) Among women younger than age 25, studies have found that 28-46% are infected with human papilloma virus. (19) Furthermore, herpes infection increased among teens through the early 1990s. (19) Of the more than 350,000 16- to 21-year-olds tested, more than 2:1,000 were HIV-infected, with rates among young African American women exceeding 5:1,000. As reported in the *Journal of Acquired Immune Deficiency Syndrome and Human Retrovirology*, (20) African American women had the highest HIV infection rate of any group. HIV prevention efforts have contributed to a significant slowing in the spread of the HIV epidemic, yet many young men and women continue to be infected with HIV. (21) Teens who contract STDs and do not seek treatment face additional risks. Long-term sequelae associated with untreated sexually transmitted infections include

infertility, tubal pregnancy, fetal and infant loss, chronic pelvic pain, and cervical cancer. (22) Furthermore, infection with 1 STD increases the probability of contracting and being diagnosed with another STD. (23) Both ulcerative and nonulcerative STDs increase HIV infection risks as much as three- to fivefold. (24)

FAMILY STRUCTURE, INVOLVEMENT, COMMUNICATION, AND VALUES

Family involvement, family structure, parental values, parental monitoring, and parent--child communication are important factors influencing critical life choices and are a crucial part of teen pregnancy prevention. The closeness of family ties, parental preteen support, and especially mother--daughter relationships is associated with teens not having sex (25,26-28) or delaying the onset of sexual intercourse, (29,30-35) a lower frequency of intercourse, (36,37))more consistent use of contraception by sexually active teens, (37) and a reduced risk of teen pregnancy. (38) Conversely, low parental support and involvement has been related to sexually permissive attitudes of teens and an association with sexually active friends. (39) Parental monitoring is related to less frequent sexual intercourse, (36) lower sexual risk-taking, (40) and delayed first intercourse. (29,35) Discussion of HIV and AIDS between parents and children was also related to a decreased likelihood of teens having multiple partners and unprotected intercourse. (41) Notably, Picks and Palos (42) found that frequent mother--laughter discussions about sex was associated with a lower probability of daughters having sex and getting pregnant and a higher likelihood of using contraception. Furthermore, parents who participate in programs to improve communication do increase communication with their adolescents and report more comfort in doing so. (43)

CHARACTERISTICS OF EFFECTIVE AND INEFFECTIVE PREVENTION PROGRAMS

Reviews of abstinence-only programs have not found consistent and significant effects on delaying the initiation of intercourse. (44) Similarly, sex education programs that did not specifically target resistance skills to reduce risk behavior also did not demonstrate significant differences in sexual activities or the use of contraception. (45,46) Effective programs should provide basic, accurate information about the risks of participating in, and the methods of avoiding, unprotected intercourse, and should promote abstinence and inform teens about contraception. Given that fostering teen-parent communication has been significantly associated with a teen's decision to delay intercourse (30) and to use contraception, (47) a program that integrates abstinence and contraception through parent-teen communication should expect to have greater combined results.

Programs effective in reducing unsafe sexual practices had several important characteristics. (43,48,49) They targeted specific goals that focused on reducing one or more sexual behaviors that led to unintended pregnancy or STD infection, such as delaying the initiation of intercourse or using adequate protection. Successful programs also focus on recognizing social influences, changing group and individual norms, and building social skills through role playing and interviewing practice. They provided a process for implementing actions, not just new knowledge. Useful programs also included behavior goals, teaching methods, and materials that were tailored to the age, gender, sexual experience, and culture of the student population. For example, delaying intercourse was emphasized with a middle school population, whereas concepts of abstinence in an older adolescent group were deemed less appropriate. Culturally sensitive programs had speakers or teachers from the same race, culture, and socioeconomic background that delivered culturally relevant messages (50) and included culturally relevant concepts in class content. (51)

Effective programs also continually reinforced prevention-oriented content and behaviors. They provided basic, accurate information about the risks and methods of avoiding unprotected intercourse. They included activities addressing social pressures on sexual behaviors and providing modeling and practice in communication, negotiation, and refusal skills. Effective programs selected teachers or peers who believed in the program they were implementing and then provided training for them.

Many of the characteristics of successful programs are seen in the Elements of Promising Programs, (52) which states that

programs should have a clearly defined target population and be culturally relevant, using input from the community to achieve this goal. They should have a foundation in cognitive theory, provide specific skills training, and use active rather than passive participant learning.

The timing of implementing preventive sex education programs may be pertinent. For example, it may be important to consider seasonal variation in teen conceptions. The peak months of conception for those aged younger than 18 years are May, June, and December, which coincide with breaks from school and other organized teen activities. (53) Potential benefits could accrue by increasing prevention efforts before high-risk periods.

Few programs are designed specifically for middle or elementary school students; the vast majority of programs address high school students. In 1 study, (54) low-income African American students in eighth grade participated in a program entitled, "Postponing Sexual Involvement," based on social learning theory, to help youth understand social and peer pressure and develop resistance skills. The course, taught by eleventh and twelfth grade students, included a human sexuality component covering decision-making and contraceptive use. This program showed significant results in delaying the initiation of intercourse in students tested in the eighth and ninth grade, but not in twelfth grade. The frequency of intercourse was reduced in ninth grade students who were sexually inexperienced at pretest, but not among those who were sexually experienced. Likewise, contraceptive use was increased only in ninth grade students who were sexually inexperienced at pretest. The results indicated greater program effectiveness for younger, less experienced adolescents. This study by Howard and McCabe (54) and other studies (46) demonstrate factors important for inclusion in curriculum design. Once patterns of sexual initiation are established, they are difficult to change. It is very important to reach youth before sex is initiated to introduce concepts of safe sex and a rationale for delaying sexual initiation to prevent HIV/AIDS and pregnancy.

Few studies have incorporated a parent--child component and tested the short and long-term effectiveness of a joint parent--child component for the prevention of teen pregnancy and STDs, although this approach is now recommended by national review panels and other research and interest groups. (55,56) Interventions in the past often have been implemented with parents or youth separately. Researchers suggest that parents need to be involved to a greater extent in the sex education of adolescents, and that there needs to be some emphasis on parental efficacy as well. Hogan and Kitagawa (1985) showed that parental control of dating (supervision and control over hours, locations, and partners) was a strong inhibitor of adolescent sexual activity and pregnancy. Important factors in delaying teen sexual behavior include consistency between teen and parent values and the closeness of family ties. (30,32,34,57) Parents also need effective communication skills to talk with and listen to their teens. In particular, they need skills regarding setting limits and dating rules. (58) As noted, the fostering of teen-parent communication, particularly between mother and daughter, has been significantly associated with a teen's decision to delay intercourse (30) or to use contraception. (47) Involving parents reduces their opposition to sex education and enhances their support. Brown, Downs, Peterson, and Simpson (59) taught sexuality courses using community sponsorship and support and have consistently and effectively recruited and maintained parental involvement from course beginning to end. Wilson, Kastrinakis, D'Angelo, and Getson (60) reported that communication with parents and parental suggestion to use condoms has been effective in increasing condom use in Black boys aged 11-19 years whose average age of first intercourse was 12.4 years. In a study using focus groups with high-risk adolescents, teens from several different ethnic groups all cited that their life priorities were "being loved" and "having a family." (61) The youth stated they wanted to talk with someone they could trust and who knew what they were going through, suggesting that parental involvement, particularly with very young teens, could have salutary effects on adolescent choices, including those about sexual behavior. Research suggests a more pivotal role for parents in the prevention of teen pregnancy than has yet occurred. (62)

CONSTRUCTION OF A MIDDLE SCHOOL PARE PROGRAM FOR PARENTS AND TEENS

The Parent--Adolescent Relationship Education (PARE) curriculum was developed to target youth aged 12-14 years, and encourage the involvement of parents in the education of their children. The curriculum is based on findings that teens,

particularly early teens, need parental support and communication to develop healthy psychosocial and sexual behaviors and to counteract powerful pressures for unsafe behaviors. Parental behaviors, particularly attitudes and statements of approval and disapproval of preteen behaviors, determine to a great extent the attitudes held by preteens entering adolescence. It is expected that parental influence is greater in the preteen school years than in the high school years, when the peer group assumes more influence.

Literature reports further indicate that adequate family communication may delay the onset of adolescent sexual activity, cigarette smoking, and alcohol and marijuana use. (26,63-65) Although there are many school-based sex education and STD prevention curricula, those that offer both knowledge and skill training to adolescents and their families are extremely rare. (65-67)

The PARE curriculum was developed after a review of the literature and several course manuals on sexuality and sex education programs. We selected course materials from experimental research courses that obtained significant results in delaying sexual initiation and increasing safe-sex practices. The curriculum manuals that we consulted most frequently were: (1) Postponing Sexual Involvement: An Educational Series for Young Teens by Howard and Mitchell, (68) (2) Reducing the Risk: Building Skills to Prevent Pregnancy, STD, and HIV, third edition, by Barth, (69) and (3) Parent-Child Sex Education: A Training Module by Brown, Downs, Peterson, and Simpson. (59) These course materials are based on social learning theory. The first two have emanated from rigorous research projects that have obtained significant results in changing patterns of student sexual decision-making and behavior outcomes. The third identifies consistently successful parental recruitment protocols using established community institutions.

DESIGN

Participants

The project targets 12- to 14-year-old school youth in grades 6, 7, and 8 and their parents for participation in a preteen pregnancy and STD prevention project. Middle school youth were selected because they have almost reached sexual maturity, they are at an age when many initiate sexual activities, and because sexual initiation is occurring at increasingly younger ages, especially among urban minority youth.

School teachers and administrators reported that sixth grade students attempt to acclimate rapidly into the middle school culture and try to fit in and be accepted. One way of doing this is by having sex. The onset of sexual activity is between 25% and 65% for students aged 12-14 years; higher rates are more likely to occur in racially integrated schools. (70) Furthermore, two educators participating in our research project in construction of the curriculum and who had previously taught sexuality classes observed, as have others, (33) that 12- and 13-year-old youth commonly engage in sexual or presexual behaviors that are antecedents to the initiation of sexual intercourse.

The participants in the project are 150 parent--child dyads recruited from 5 middle schools in 2 different school districts in southeast Texas. Parents and students in each school participate in one of 2 randomly assigned conditions: (1) an experimental treatment group (n = 75), or (2) an attention-control group (n = 75). The treatment group receives the social learning teaching approach described below, whereas the attention-control group receives similar factual content taught in a traditional didactic approach and without social learning exercises. Both groups meet the same number of sessions and hours. The experimental and control groups meet on different days to control for validity contamination.

Before initiating the program protocol, we sought active consent from all participating parents and students by sending letters to parents via the students and through the mail informing them of the course and providing details regarding their participation. The school principals endorsed the program and signed the letters, which were written in both English and

Spanish. We held classes after regular school hours in the respective schools.

We used incentives in each class to encourage parental and student attendance at classes, including meals and raffles of random awards and prizes in each class session. The last class (fourth session) in each school included a prize of higher than usual value; we informed parents of this at the start of classes. We used motivational methods, including reminder letters, telephone calls, and incentives to minimize attrition.

The Experimental Curriculum

The PARE curriculum includes social learning and cognitive-behavioral theoretical approaches in the education of parents and teens. The social learning model (71) includes teacher and peer modeling of desirable behaviors and the practice of these behaviors through role playing. The model also includes elements of self-efficacy, (72) an individual's belief that if certain methods are employed, they will be successful (ie, preventing pregnancy or the contraction of STDs), that benefits can accrue to the individual, and that the individual is capable of accomplishing the necessary behaviors to attain the goal. Cognitive behavioral models (73) further posit that specific cognitive and behavioral skills are needed to resist pressures for sexual activity. The PARE curriculum includes activities to personalize information about sexuality and reproduction, and provides training in problem-solving, decision-making, and assertive communication skills. Practice opportunities are provided for applying these skills in difficult situations. Class sessions for parents and youth include content on adolescent development, reproductive changes during puberty, peer and media pressures, the consequences and responsibilities of sexual behavior, resistance training, role-playing, communication with peers and parents, practice exercises, and behavioral reinforcement, all important components of behavior change. In addition, abstinence, and methods to prevent pregnancy and STDs also were discussed. The course targets youth at a period when the greatest increase in initiation of sexual behavior occurs and focuses on strengthening family communication overall, particularly on teen sexuality.

The PARE program is a 4-week course that meets once each week. During the first half of each class session, parents and youth attend a 1 1/2-hour class separately; during the last half of each session, parents and youth attend a 1 1/2 hour class together. Each session includes a brief review of the prior session and builds upon that content to enhance communication. The second half of each session consists of a combined parent--adolescent education unit. During these classes, parents and teens have the opportunity to process together what they have learned independently and to practice their new skills. Role-playing opportunities are included in every joint parent--child experimental class session.

In Session I of both the parent and adolescent education units, we taught parents and children separately in classes that focused on puberty and barriers to parent--child communication. We discussed the physical, emotional, and relationship changes of puberty. Adolescents learned what to look for in a good relationship with parents. We also taught them the barriers to effective communication with parents and how to circumvent them. In a similar fashion, we taught parents how to avoid obstacles to communication with children. Parents learned about what to expect from young people during adolescence, how to be a parent during this time, and about different parenting styles. Also in the first session, adolescents and parents learned how to identify and avoid risky situations, such as those involving drugs and sex. Adolescents learned that an important component of good communication is how to say "no" to friends and how to effectively deal with peer pressure.

After a review of Session I, the Session II class concentrated on effective communication. Parents and adolescents independently became familiar with how to open the lines of communication, the tools needed for good communication, and what to expect from each other. They also familiarized themselves with the responsibilities of sexual behavior, such as contraceptive use and honest communication with their partner, as well as with the consequences of sexual behavior, such as unintended pregnancy and contracting STDs, such as HIV.

Session III provided students and parents with an overview of risky sexual behaviors and the situational or environmental

conditions that predispose teens to risky behavior. We presented students with 2 risky scenarios of unsupervised coeds: 1 at home after school and another at an unsupervised party where alcohol and condoms were available. We asked students to identify the risky conditions and behaviors, as well as the possible outcomes. We then asked them to consider strategies to better manage and avoid risky situations. Students also learned advance planning for the prevention of risky circumstances.

In Session IV, educators reinforced the ground rules for effective communication between parents and adolescents, and reviewed the content and skills of the parent and adolescent education units of Session III that are prerequisite to the learning and role-playing activities, and discussions of Session IV. We taught parents and students to identify situations that caused them stress and ways to deal with them. Participants also learned how to overcome barriers and reach life goals. In the joint parent-teen class in the second half of Session IV, educators assisted the parents and adolescents in sharing the emotional and cognitive aspects of their experience and in defining future goals.

Following the initial PARE program of 4 weekly sessions, 3 maintenance or booster sessions were arranged for both study groups--1 each semester for three consecutive semesters. Each booster session was again divided into 2 classes with the parents and adolescents apart in the first half of the session and together in the second half. The purpose of the booster sessions, particularly Session I, was to bring the parents and adolescents together and explore their successful and unsuccessful experiences with their peer and familial relationships over the previous months. Booster sessions were designed to re-examine previously learned material and to provide new information. During the booster sessions, we provided the participants with a supportive environment to practice their skills. The latter 2 booster sessions focused on specific issues. Booster Session II focused on personal values, beliefs, attitudes, and communication, whereas Booster Session III focused on dating, including what it means to date, what can happen on a date, and how parents can help youth prepare for dating.

Four facilitators or teachers in the first year taught each of the initial 4 sessions: 1 teacher for the girls' group, 1 for the boys' group, 1 for an English-speaking parent group, and 1 bilingual teacher for a Spanish-speaking parent group. For the booster classes, we combined boys' and girls' classes, which were led by 1 teacher. We used the same number of facilitators and classes for both the experimental and control groups. Almost all facilitators were prepared at the master's degree level or beyond and were practicing licensed marriage and family therapists, licensed professional counselors, psychiatric residents or fellows in adolescent medicine, or health educators. Several of the facilitators held positions as HIV/AIDS and STD counselors. Largely, we were able to match teachers and students by predominant race or ethnic group. Approximately 4 to 8 students or parents participated in each of the sessions in the different schools; classes doubled in size for the combined parent-teen classes.

Measurement Instruments

We developed all of the instruments used in the project from existing instruments used in research projects by other investigators. The design included the administration of 2 survey pretests, 4 to 6 months apart, before initiation of the program. The purpose of the inclusion of 2 survey pretests was to adjust for threats to validity because of selection biases. (74) With 2 periods of survey assessment before the intervention, we could also test for baseline levels of attitudes and note the direction of change in attitudes and behaviors.

Survey. The middle school survey is adapted principally from the National Youth Survey developed by ETR Associates. (75) The youth survey was designed to measure beliefs and practices about unsafe sexual behavior, STDs, and AIDS in sixth-, seventh-, and eighth-grade youths. For our survey of middle school youth, we added items to explore the children's perceptions of how their parents regarded them, specifically in areas of perceived opinions and/or expectations regarding school performance, ability to succeed, and knowledge of the child's whereabouts, as well as parental disapproval of risky behaviors, including substance abuse, sexual intercourse, and pregnancy. We also included items inquiring about the amount, ease, and enjoyment of parent--teen communication in general, and specifically on the extent of discussions about abstinence, birth control and pregnancy, and the prevention of STDs and pregnancy. Finally, we included items on the extent of parental

involvement and closeness in the children's lives. The survey can be completed in approximately 30-45 minutes. After obtaining parent and student signed consent forms, we administered the survey to all consenting youth in the participating middle schools and participants in the PARE program.

Questionnaires. We administered student and parent questionnaires before the beginning of the first class session, at the end of the last (fourth) class session of the intervention program, and at the beginning and end of each of the three booster sessions. The items in the questionnaires were selected from existing questionnaires used in health risk and prevention research. We modified some of the items to make them appropriate for middle school youth. The categories of items selected were those that would be covered in the sessions and that have been found in the literature to be correlates of early sexual behavior and pregnancy.

Item content of the student questionnaires focused on the extent and comfort of student--parent discussions about AIDS, condoms and contraception, alcohol and substance use, sex and safe sex, and STD and pregnancy prevention, and the extent of discussion on these topics with friends. We also included items on the perceived importance of parents' feelings in the student's choice of friends, alcohol and drug use, and having sex, and on whether there were parental rules about going on dates or to parties, substance use, staying out late, choice of friends, places to visit after school, sex, and contraception. We also assessed students' knowledge about AIDS, transmittal of STDs, and circumstances under which pregnancy can occur, along with opinions about condom or foam use and the student's chances of contracting AIDS or getting pregnant, and specific circumstances that presented risk. We included items on students' decision-making methods and resistance and refusal skills in risky circumstances. In addition, we included items addressing students' perception of parental involvement in homework, the teens' school activities, and parental programs at school to determine the relationship of these factors with sex initiation, contraceptive use, the use of refusal and resistance skills, other sex behaviors, pregnancy prevention, and risky behaviors.

The parent questionnaire contained items that were parallel in content to the topics and items on the student questionnaire. For example, parent questionnaire items assessed the extent and comfort parents had in discussions; parental opinions of their child's potential behaviors; opinions about the appropriateness of different STD and pregnancy prevention methods; views on male and female responsibility for safe sex; knowledge about AIDS/STDs and risks of pregnancy; opinions about condom use; and the extent of parental upset if their child used drugs or alcohol, had sex, or got pregnant.

Orientation of PARE Program Facilitators/Teachers

The first author (RPL) interviewed and hired all of the facilitators (teachers) for the PARE program. All 31 facilitators attended orientation and training classes. An experienced educator who had previously trained facilitators on other NIH grant projects conducted all orientation sessions. Two of the facilitators had a baccalaureate degree--1 was a grade school teacher, and the other had a degree in psychology and worked for the Red Cross. The remaining 29 facilitators each held a master's degree, were doctoral students, or held a doctoral degree in a social science discipline. Three facilitators were psychiatric physicians, either residents or fellows. Orientation and training sessions provided a review of class content, opportunities to address and discuss sexual issues and questions that could arise in classes, and directions and discussion about teaching approaches for the experimental and control groups. In the vast majority of teaching assignments, the same facilitators taught each of the initial series of intervention classes. Facilitators teaching in the experimental program group did not teach in the attention control group classes. For the maintenance and booster class sessions offered at 6-month intervals, it was still possible to assign facilitators to the experimental and attention control groups consistent with their original assignment in most instances, but less often to the same groups of parent--student dyads. Detailed, written class guidelines on content to be covered and specific teaching approaches for the experimental group classes and the separate attention control group classes were also given to each of the facilitators and reviewed with them. Periodically, feedback was sought from facilitators on the adequacy of the guidelines provided. Suggestions for modifications were incorporated into the subsequent written materials. Overall, facilitators found the written materials satisfactory and easy to follow and implement.

COMMENT

The research project on teen pregnancy and STD/HIV prevention and the PARE curriculum developed by project personnel is novel in several respects. The project targeted middle school youth (vs high school youth), and parents and students together in both separate and dyadic learning sessions. Comprehensive content is provided on risks and protective measures and on both abstinence and safe sex. The program has a distinctive focus on family interaction and parent--teen communication skills, as is emphasized by the National Campaign to Prevent Teen Pregnancy. (71) Afterschool and early evening classes are offered for both parents and youth. In addition, maintenance or booster sessions at 6-month intervals are provided after the initial intervention class series to review content and skills, reinforce prevention messages to reduce and manage risk, and foster continued parent--teen communication and interaction. Of the 5 Centers for Disease Control approved programs for teen pregnancy and HIV/AIDS prevention, only 1 is for middle schools, and none use a joint parent--teen educational format.

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REFERENCES

- (1.) Centers for Disease Control. Trends in sexual risk behaviors among high school students--United States, 1990, 1991, and 1993. *MMWR*. 1995;44:124-131.
- (2.) Centers for Disease Control. Premarital sexual experience among adolescent women--United States, 1970-1988. *MMWR*. 1991;39:929-932.
- (3.) Ventura SJ, Taffel SM, Mosher WD, Henshaw S. Trends in Pregnancies and Pregnancy Rates, United States, 1980-1988. Hyattsville, MD: US Department of Health and Human Services; 1992.
- (4.) Ventura SJ, Curtin SC, Mathews TJ. Teenage Births in the United States: National and State Trends, 1990-1996. Hyattsville, MD: National Center for Health Statistics; 1998.
- (5.) National Center for Health Statistics. Vital Statistics of the United States, 1988--Vol.1: Natality. Washington, DC: US Government Printing Office; 1990.
- (6.) National Center for Health Statistics. Advance Report on Final Natality Statistics. Washington, DC: US Government Printing Office; 1991.
- (7.) Public Health Service. *MVSR*. 1993;42(suppl 3).
- (8.) Centers for Disease Control. State-specific Pregnancy and Birth Rates Among Teenagers--United States, 1991-1992. *MMWR*. 1995;44 677-584.
- (9.) Centers for Disease Control. Sexually Transmitted Disease Surveillance, 1996. Atlanta, GA: Centers for Disease Control; 1997.
- (10.) Institute of Medicine, Committee on Unintended Pregnancy. The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families. Washington, DC: Institute of Medicine; 1995.

- (11.) Gilcrest V. Preventive health care for the adolescent. *Am Fam Physician*. 1991;43:869-879.
- (12.) Holden GW, Nelson PB, Velasquez J, Ritchie KL. Cognitive, psychosocial, and reported sexual behavior differences between pregnant and nonpregnant adolescents. *Adolescence*. 1993;28:557-572.
- (13.) Centers for Disease Control. Adolescent Health: State of the Nation--Pregnancy, Sexually Transmitted Diseases, and Related Risk Behaviors Among U.S. Adolescents. Atlanta, GA: US Department of Health and Human Services; 1995. Publication No. CDC 99-4630.
- (14.) Henshaw SK, Van Vort J. Teenage abortion, birth, and pregnancy statistics: an update. *Fam Plann Perspect*. 1998;21:85-88.
- (15.) Dryfoos J. *Adolescents at Risk: Prevalence and Prevention*. New York: Oxford University Press; 1995.
- (16.) DiClemente RJ, Fisher RD. Social influence factors associated with consistent condom use among adolescents in an HIV epicenter: communication and referent group norms. *J Adolesc Health*. 1992;12:385-390.
- (17.) Kost K, Forrest JD. American women's sexual behavior and exposure to risk of sexually transmitted diseases. *Fam Plann Perspec*. 1992;24:244-254.
- (18.) Mertz KJ, McQuillan GM, Levine WC, et al. A pilot study of the prevalence of chlamydial infection in a national household survey. *Sex Transm Dis*. 1998;5:225-228.
- (19.) Centers for Disease Control. Tracking the hidden epidemic trends in STDs in the United States 2000. Available at: http://www.cdc.gov/nchstp/dstd/Stats_Trends/STD_Trends.pdf. Accessed October 6, 2001.
- (20.) Valleroy L, MacKellar DA, Karon JM, Janssen RS, Hayman CR. HIV infection in disadvantaged out-of-school youth. *J Acquir Immune Defic Syndr Hum Retrovirol*. 1998;19:67-73.
- (21.) Centers for Disease Control. National Data on HIV Prevalence Among Disadvantaged Youth in the 1990s. Available at: <http://www.cdc.gov/hiv/pubs/facts/jobcorps.htm>. Accessed October 8, 2001.
- (22.) Donovan P. *Testing Positive: Sexually Transmitted Diseases and the Public Response*. New York: Alan Guttmacher Institute;1993.
- (23.) Aral SO, Holmes KK. The epidemiology of sexual behavior and sexually transmitted diseases. In Holmes KK, ed. *Sexually Transmitted Diseases*. 2nd ed. New York: McGraw-Hill;1990.
- (24.) Wasserheit JN. Epidemiological synergy: interrelationships between HIV infection and other STDs. *Sex Transm Dis*. 1992; 19:61-77.
- (25.) Fox GL, Inazu JK. Patterns and outcomes of mother-daughter communication about sexuality. *J Soc Issues*. 1980;36:7-29.
- (26.) Inazu JK, Fox GL. Maternal influence on the sexual behavior of teen-age daughters: Direct and indirect sources. *J Fam Issues*. 1980;1:81-102.

- (27.) Whitbeck L, Hoyt D, Miller M, Kao M. Parental support, depressed affect, and sexual experiences among adolescents. *Youth Soc.* 1992;24:166-177.
- (28.) Jensen LC, DeGaston JF, Weed SE. Societal and parental influences on adolescent sexual behavior. *Psychol Rep.* 1994;75:928-930.
- (29.) Danziger SK. Family life and teenage pregnancy in inner-city: Experiences of African American youth. *Child Youth Serv Rev.* 1995;17:128-202
- (30.) Fox GL. The family's role in adolescent sexual behavior. In Ooms, T. ed. *Teenage Pregnancy in a Family Context*. Philadelphia, PA: Temple University Press; 1981.
- (31.) Jessor R, Costa F, Jessor L, Donovan J. Time of first intercourse: a prospective study. *J Pers Soc Psych.* 1983;44:608-626.
- (32.) Jessor SL, Jessor R. Transition from virginity to nonvirginity among youth: a social-psychological study over time. *Dev Psych.* 1975;11:473.
- (33.) Miller BC, Norton MC, Curtis T, Hill EJ, Schvaneveldt P, Young MH. The timing of sexual intercourse among adolescents: family, peer, and other antecedents. *Youth Soc.* 1997;29:54-83.
- (34.) Shah FK, Zelnik, M. Parent and peer influence on sexual behavior, contraceptive use and pregnancy experience of young women. *J Marriage Fam.* 1981;43:339-348.
- (35.) Upchurch DM, Levy-Storms L, Sucoff CA, et al. Gender and ethnic differences in the timing of first sexual intercourse. *Fam Plann Perspect.* 1998;30:121-127.
- (36.) Benda BB, Di Basio FA, Kashner TM. Adolescent sexual behavior: a path analysis. *Journal of Social Service Research.* 1994;19:49-69.
- (37.) Jaccard J, Dittus PJ, Gordon VV. Maternal correlates of adolescent sexual and contraceptive behavior. *Fam Plann Perspect.* 1996;28:159-165,185.
- (38.) Resnick MD, Bearman PS, Blum R, et al. Protecting adolescents from harm: findings from the National Longitudinal Study on Adolescent Health. *JAMA.* 1997;278:823-832.
- (39.) Whitbeck L, Conger R, Kao M. The influence of parental support, depressed affect, and peers on the sexual behaviors of adolescent girls. *J Fam Issues.* 1993;14:261-278.
- (40.) Luster T, Small SA. Factors associated with risk-taking behaviors among adolescents. *J Marriage Fam.* 1994;56:622-632.
- (41.) Holtzman D, Robinson R. Parent and peer communication effects on AIDS-related behavior among U.S. high school students. *Fam Plann Perspect.* 1995;27:235-240,268.
- (42.) Picks S, Palos PA. Impact of the family on the sex lives of adolescents. *Adolescence.* 1995;30:667-675.
- (43.) Kirby D. Sexuality and sex education at home and at school. *Adolesc Med.* 1999;10:195-209.

- (44.) Kirby D. A Review of Educational Programs Designed to Reduce Sexual Risk-taking Behaviors Among School-aged Youth in the United States. Springfield, VA: National Technical Information Service;1995.PB96108519.
- (45.) Eisen M, Zellman GL, McAlister AL. Evaluating the impact of a theory-based sexuality and contraceptive education program. *Fam Plann Perspect.* 1990;22:261-271.
- (46.) Kirby D, Barth RP, Leland N, Fetro JV. Reducing the risk: impact of a new curriculum on sexual risk-taking. *Fam Plann Perspect.* 1991;23:253-263.
- (47.) Jorgensen SR, Sonstegard JS. Predicting adolescent sexual and contraceptive behavior: an application and test of the Fishbein model. *J Marriage Fam.* 1984;46:43-55.
- (48.) Leland NL, Barth RP. Gender differences in knowledge, intentions, and behaviors concerning pregnancy and sexually transmitted disease prevention among adolescents. *J Adolesc Health.* 1992;13:589-599.
- (49.) Santelli JS, DiClemente RJ, Miller KS, Kirby D. Sexually transmitted diseases, unintended pregnancy, and adolescent health promotion. *Adolesc Med.* 1999;10:87-108.
- (50.) Jemmott JB, Jones JM. Social psychology and AIDS among ethnic minority individuals: risk behaviors and strategies for changing them. In Pryor J, Reeder G, eds. *The Social Psychology of HIV Infection.* Hillsdale, NJ: Lawrence Erlbaum Associates; 1993:183-224.
- (51.) Asante MK. Afrocentric curriculum. *Educ Leadership,* 1991;49:28-31.
- (52.) National HIV Prevention Conference. *Elements of Promising Programs.* Atlanta, GA: National HIV Prevention Conference; 1999.
- (53.) Petersen DJ, Alexander GR. Seasonal variation in adolescent conceptions, induced abortions, and late initiation of prenatal care. *Public Health Rep.* 1992;107:701-706.
- (54.) Howard M, McCabe JB. Helping teenagers postpone sexual involvement. *Fam Plann Perspect.* 1990;22:21-26.
- (55.) Carnegie Council on Adolescent Development; 1995
- (56.) National Campaign to Prevent Teen Pregnancy. *Whatever Happened to Childhood? The Problem of Teen Pregnancy in the United States.* Washington, DC: National Campaign to Prevent Teen Pregnancy; 1997.
- (57.) Hogan DE, Kitagawa EM. The impact of social status, family structure, and neighborhood on the fertility of black adolescents. *Am J Soc.* 1985;90:825-855.
- (58.) Santelli JS, Beilenson P. Risk factors for adolescent sexual behavior, fertility, and sexually transmitted diseases. *J Sch Health.* 1992;62:271-279.
- (59.) Brown JG, Downs MM, Peterson L, Simpson CA. *Parent-child Sex Education: A Training Module.* St. Joseph, MO: Parent-Child Experience, Inc;1989.
- (60.) Wilson MD, Kastrinakis M, D'Angelo LJ, Getson, P. Attitudes, knowledge, and behavior regarding condom use in urban

black adolescent males. *Adolescence*, 29:13-26.

(61.) Advisory Panel on Health Promotion Strategies for High-Risk Youth. Designing health promotion approaches to high-risk adolescents through formative research with youth and parents. *Public Health Rep.* 1993;108(supp 1):68-77.

(62.) Miller BC. *Families Matter: A Research Synthesis of Family Influences on Adolescent Pregnancy*. Washington, DC: National Campaign to Prevent Teen Pregnancy; 1998.

(63.) McCubbin H, Needle R, Wilson M. Adolescent health risk behaviors: family stress and adolescent coping as critical factors. *Fam Rel.* 1985;34:51-62.

(64.) Jaccard J, Dittus PJ. *Parent-teen Communication: Toward the Prevention of Unintended Pregnancies*. New York: Springer-Verlag; 1991.

(65.) Winnet RA, Anderson ES, Moore JF. Efficacy of a home-based human immunodeficiency virus prevention video program for teens and parents. *Health Educ Q.* 1993;20:555-567.

(66.) Taylor J. *Teaching AIDS Project*. Santa Cruz: ETR Associates; 1991.

(67.) Fisher J, Fisher W. Changing AIDS risk behavior. *Psych Bull* 111. 1992:455-474.

(68.) Howard M Mitchell ME. *Postponing Sexual Involvement: An Educational Series for Young Teens*. Atlanta, GA: Emory/Grady Teen Services Program, Grady Memorial Hospital; 1990.

(69.) Barth RP. *Reducing the Risk: Building Skills to Prevent Pregnancy, STD, and HIV*. 3rd ed. Scotts Valley, CA: ETR Associates; 1996.

(70.) Sagrestano LM, Paikoff R. Preventing high-risk sexual behavior, sexually transmitted diseases, and pregnancy among adolescents. In Weissberg RP, ed. *Health Children: Enhancing Children's Wellness*. Newbury Park, CA: Sage Publications; 1997.

(71.) Bandura A. *Social Foundations of Thought and Action*. Englewood Cliffs, NJ: Prentice Hall; 1986.

(72.) Bandura A. Perceived self-efficacy in the exercise of control over AIDS infection. *Eval Program Plann.* 1990;13:9-17.

(73.) Bandura A. Social cognitive theory of self-regulation. *Organizational Behav Hum Decis Processes.* 1991;50:248-287.

(74.) Cook TD, Campbell DT. *Quasi-Experimentation: Design and Analysis Issues for Field Settings*. Boston, MA: Houghton Mifflin Co.; 1979.

(75.) ETR Associates. *Middle school questionnaire (Unpublished)*. Scotts Valley, CA: ETR Associates; 1993.

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